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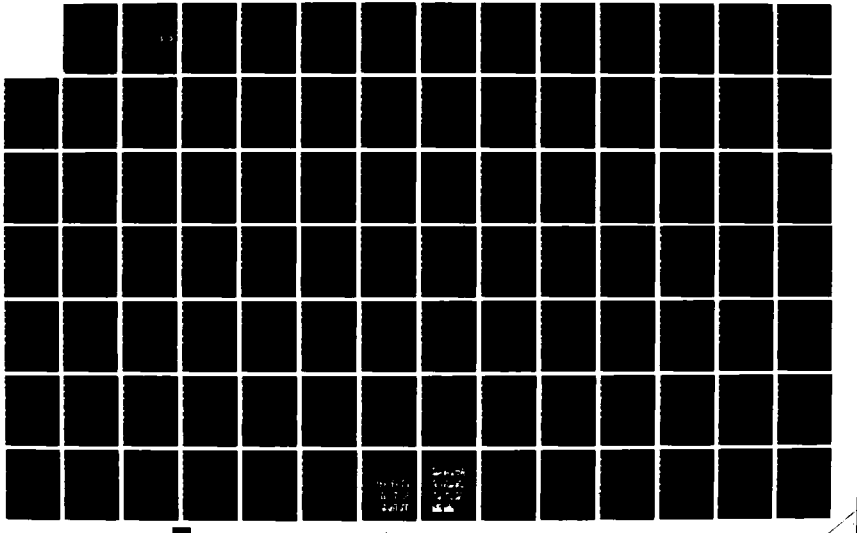

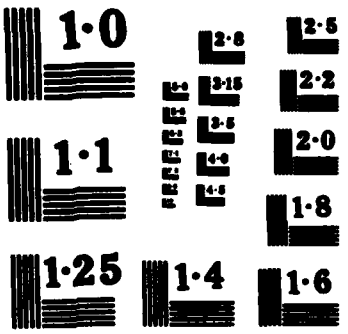
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ABSTRACT

"Instruction Via An Intelligent Videodisc System Versus Classroom Instruction For Beginning College French Students: A Comparative Experiment."

By Jill M. Crotty, Captain, USAF

1984 Ph.D. Dissertation in Foreign Language Education at The University of Kansas (97 pages).

This study investigated the effectiveness of two instructional methods, videodisc instruction and classroom instruction. The experiment was conducted at the United States Air Force Academy. Subjects (N = 78) were cadets enrolled in the first semester beginning French course. The cadets were randomly assigned to three treatment groups: (1) Videodisc Instruction, (2) Classroom instruction, (3) No instruction (Control). Group 1 received instruction via an intelligent videodisc system that included a videodisc player interfaced to a microcomputer and courseware designed for beginning language students. The Classroom group received instruction over exactly the same materials in a normal classroom setting. Group 3 received no instruction.

Students in Groups 1 and 2 received ninety minutes of instruction (forty minutes the first session, fifty minutes the second session). Students in all three groups took a 28-item multiple choice/completion posttest. Students in the Videodisc Group also completed a user-satisfication survey. Although the mean score of the Videodisc Group was higher than the mean score for the Classroom group ($\bar{x}$ = 22.62 versus $\bar{x}$ = 20.38), the difference was not large enough to be statistically significant. Analysis of the survey responses indicated very positive student attitudes toward the videodisc system.

The results of the study provide empirical support for the underlying assumption of this research: An intelligent videodisc system can be used to provide instruction for certain basic components of languaqe learning which are prerequisite to communication.

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AUTHOR: Jill M. Crotty

RESEARCH ASSESSMENT QUESTIONS:

1. Did this research contribute to a current Air Force project?

( ) a. YES ( ) b. NO

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STATEMENT(s):

INSTRUCTION VIA AN INTELLIGENT VIDEODISC SYSTEM VERSUS CLASSROOM INSTRUCTION FOR BEGINNING COLLEGE FRENCH STUDENTS: A COMPARATIVE EXPERIMENT

by

Jill M. Crotty
B.A., Oklahoma State University, 1969
M.A., The Ohio State University, 1979

Submitted to the Department of Curriculum and Instruction and the Faculty of the Graduate School of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dissertation Committee:

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Chairman

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Dissertation defended: May 1984

CHAPTER I

THE PROBLEM

Introduction

Assorted journals and periodicals found on newsstands today provide ample evidence that we are in the midst of an electronic revolution. The literature abounds with exciting predictions about the potential of emerging technologies. In the last three decades, the rapid evolution of the computer has had far-reaching implications in most facets of our existence. Computers are considered indispensable to many of our daily activities. Some predictors foresee "zero-cost" computers (computer hardware with negligible cost much like calculators and watches) by 1985 (Braum, 1977).

While some educators still side with McLuhan (1964) who believed that the wheel had "amputated" our feet and pondered what the computer as "an extension of our brain" might be doing to us, most are intrigued and guardedly

optimistic for the educational potential of these new technologies. According to Holmes and Kidd (1980) "unrestrained enthusiasm and irrational fears about the role of the computer in education, particularly in the field of second-language learning, are equally unsubstantiated by the evidence" (p. 8). Foreign-language educators who are fearful about the use of technology in language classrooms find support for their resistance in the disastrous results of earlier "instructional revolutions" which stormed the foreign-language classrooms--specifically, the advent of the language laboratory and early versions of computer assisted instruction. These educators want to avoid the "bandwagon syndrome" as described in a recent article in the CALICO Journal, according to Putnam (1983):

> As a group, these educators have a history of jumping on passing bandwagons, perhaps even more than their colleagues in other disciplines. Apparently, they need to be reminded that when the music stops they may find themselves far from home with nothing but broken instruments and badly frayed sheet music. (p. 36)

Foreign-language educators who are enthusiastic about the potential of technology for language instruction are greatly encouraged by the optimism which abounds in educational literature. There is a growing belief that many of the earlier problems associated with

the use of computers in an instructional setting (high costs, machine-related problems, and lack of quality software) have been alleviated by the advent of the microcomputer. The recent interface of computers with videodisc players, termed "intelligent videodisc", is cautiously being called the greatest instructional innovation since moveable type (Leveridge, 1979). The following description is indicative of the growing optimism:

> The "intelligent videodisc"--a combination of advanced microprocessor, display, and storage technology--holds the potential for developing into a powerful instructional system. In an inexpensive package, it could combine advanced computer-aided instruction (CAI) software power and capability for audio, video, and textual programming. Attractive technically though it is, this system's real contribution will be that CAI will fit the institutional structure of education for the first time. (Eastwood, 1979, p. 303)

Whitney (1977) predicts that every school child will own a videodisc system in the 80's. Schneider (1976) echoes this enthusiasm and lists the following potential areas for educational interest:

1) The educational television library with freeze-frame capability.

2) A replacement for slide and tape shows.

3) Interactive applications, from the simple acceptance of multiple choice responses to fully interactive CAI/educational television.

While optimism is on the rise, most educators realize that intelligent videodisc will not provide a panacea for all the ills which plagued earlier CAI efforts. They realize that despite its unique characteristics, this new technology will face some of the same barriers to innovation in education that thwarted earlier efforts to introduce computer technology into instructional settings. Advocates are urging educators to arm themselves with information as to the capabilities of the computer-controlled videodisc. The most challenging task will be to avoid the mistakes of the past and ensure that the new technology is not labeled ineffective due to misuse. Kearsley (1979) warns:

> ...instructional theory does not keep pace with technological advances, and hence, the potential of new technology is seldom realized to any significant extent. This was true of television for a long, long time, is still true of computer-based instruction (CBI), and will undoubtedly be true of videodisc systems. There is a strong tendency to use new technology in the same ways as existing technology. (p. 129)

At the present time, there is a serious lack of "hands-on" experience with videodisc technology in an instructional setting from which educators can gain the needed insights. This study was proposed as a means of

increasing the existing knowledge base and clarifying certain questions about the potential effectiveness of an intelligent videodisc instructional system.

Statement of the Problem

This study investigated the effectiveness of videodisc instruction (computer driven, student controlled), as compared with conventional methods of instruction for students in beginning college French courses. The following question was considered: Are there differences in student achievement as measured by objective test items (multiple choice, short answer) for the two instructional methods: i.e., videodisc instruction versus classroom instruction? Also of interest were student reactions and attitudes towards the videodisc system .

Operational Definitions

The following operational definitions are intended to add clarity and precision to this study:

1. Inteiligent videodisc system: Such a system includes a videodisc player interfaced to a microcomputer and assumes the availability of pedagogically sound software (lesson materials).

2. Academic composite: A numerical representation of a cadet's potential for success at the United States Air Force Academy derived from a combination of SAT scores,

high school grades, athletic participation, and leadership positions.

3. Grade-to-date: The total number of points accumulated before the experiment for this research was conducted. Scores on major tests and quizzes are included.

4. Semesters of French: The number of semesters of prior French study a student has had. (Usually represents semesters of high school French.)

Theoretical Bases

Intelligent videodisc is often billed as an instructional revolution; however, such systems actually embody many of the tenets of well-established theories of learning. Of special interest to this research are cognitive theories of learning and theories from the field of transformational-generative linguistics which have had tremendous impact on the principles of foreign-language instruction.

Cognition has been explained by Chastain (1976) as a process which is "mental, purposive, internal and ultimately under control of the learner" (p. 131). According to cognitive theory, the mind is an active participant in the learning process. How a student perceives experiences and organizes knowledge is of primary importance to cognitive theory. Ausubel (1968), a

leading cognitive theorist, stresses the fact that learning must be meaningful, that is, the learner must understand what is being learned. According to Ausubel, "The acquisition of large bodies of knowledge is simply impossible in the absence of meaningful learning" (p.61). Ausubel and Robinson (1969) point out that meaningful learning takes place when the information being received can be related to the learner's existing collection of knowledge which is referred to as cognitive structure. In order to have meaning, an object or concept must equate to the learner's cognitive structure. As Lefrancois (1982) explains, "the word 'car' has meaning for an individual only when it can be related to a mental representation of what cars are" (p. 104). Some theorists (Ausubel, 1978 ; Johnson, 1974) believe that this cognitive structure is most effectively activated by the use of advance organizers. Ausubel explains the benefit of advance organizers as follows:

> They explicitly draw upon and mobilize whatever relevant anchoring concepts are already established in the learner's cognitive structure and make them part of the subsuming entity. Thus, not only is the new material rendered more familiar and meaningful, but the most relevant ideational antecedents in cognitive structure are also selected and utilized in integrated fashion. (p. 174)

Other theorists who have influenced concepts of

what language is and how it is learned are the transformational- generative linguists (T-G linguists). These theorists believe that language and mental processes are integrally related. Chomsky (1968) views language study as part of a larger context of cognitive psychology. An important concept of T-G theory is that language is infinitely varied. T-G theorists distinguish between what the native speakers say and what they know how to say. What they know how to say is referred to as competence; what is said is labeled performance. According to T-G theory, competence precedes performance, and students should not be asked to perform until basic foundations that enable performance have been established. Chomsky (1957) argues that language is much more complex than earlier behaviorist theories had led us to believe. His view of language and learning is mentalistic and adheres to the basic premises of cognitive psychologists. Language learning is thought to be a "creative, rule-governed behavior" (Chastain, 1976 p.143).

The influence from these two groups, the cognitive psychologists and the transformational-generative linguists, are very evident in today's foreign language classrooms. Teacher-centered approaches have given way to student-centered approaches. The pattern drills of the

audio-lingual method which required very little attention to meaning have been replaced by exercises which emphasize meaningful communication. Goals have shifted from imparting linguistic competence to developing communicative competence. For many foreign-language educators, communication is the essence of language learning (Grittner, 1977; Rivers, 1976). Chastain explains the process by which communication is obtained in terms borrowed from transformational-generative theory. To develop the ability to communicate, which is described as a "performance skill," the language learner must first acquire "competence" in a meaningful manner. Development proceeds from *competence* to performance. Acquiring competence is explained by Clausing and Wood (1947) as the internalization of certain basic prerequisites such as grammatical rules and vocabulary. Essential to this internalization process are meaningful practice activities. Gagne's (1974) categorization of learned human behaviors, which proposes that higher-level types of learning depend on lower-level capabilities, lends support to the hierarchical nature of language learning embodied in the "competence/performance" concept. Bloom's taxonomy of educational objectives (1956) also supports the idea that learning is hierarchical. Chastain views language learning as a hierarchy of

tasks which involve appropriate activities presented sequentially in order of increasing difficulty. He identifies three phases of language acquisition: (1) understanding; (2) production and manipulation; (3) communication. Practice and interaction are considered essential components of the language-learning process. According to Jarvis (1978), "We learn what we practice, what we experience, what we do" (p. 672). Language educators recognize that there is a "difference in learning outcomes between those students who just observe and those who are engaged in interactive activities involving target language production" (Schrupp, Bush & Mueller, 1983, p. 18).

Recent theories of learning have roots in the older theories discussed above but also address the unique characteristics of intelligent videodisc instruction. One such theory, the Component Theory (Merrill, 1979) designed specifically for cognitive objectives, identifies six kinds of learning objectives and describes a model of instruction suitable to each objective. The model of particular interest to this research is the one outlined for the objective which has as its goal the application of a generality to a new situation. This model calls for the presentation of a <u>generality</u>, followed by <u>examples</u> and <u>practice</u> that require

application of the generality in a new context. Practice is always accompanied by feedback and explanation of why an answer was right or wrong. This model also advocates progression of difficulty and learner control. According to Component Display Theory, learner control compensates for individual differences among students. Learners choose their own preferred instructional strategies. In addition to the three major components of the model described above, Merrill suggests some "secondary strategy components" to enhance the model. Two such strategies are the alternative representation and attention-focusing device. The first involves the use of such things as pictures, designs, and charts; the second provides for underlining, moving diagrams, and common errors (Reigeluth & Garfield, 1980).

Gale (1983) recently highlighted research results of signficant importance to instructional theory. His list was compiled in part from the work of Fleming and Levi (1978). The following items are of special interest to this research:

--The way instructional content is organized is crucial and at least as important as the technology delivering it.

--Student control of the information flow increases acquisition and remembering.

--The more opportunity to practice new ideas, concepts and skills while receiving prompt

feedback, the better.

--The contiguity of rules, examples, practice, and feedback is most important.

Gale contends that the "creative use and integration of interactive video into the teaching-learning process can help satisfy the conditions of learning identified by these research findings" (p .42).

All of the theories discussed above influenced the conceptualization and design of this research project which will attempt to assess the effectiveness of an interactive videodisc instructional system in beginning college French classes.

Assumptions

The overall assumption which guided the conceptualization and design of this project was the belief that an intelligent videodisc system could provide effective instruction of certain components of beginning language instruction. Specifically, such a system could provide students experience in sound/symbol correspondence, vocabulary acquisition, and application of verb and grammar concepts. These activities are typical in most beginning language courses. Methods of presentation vary from instructor to instructor and are often a function of textbook format. However, most classrooms seem to have the following common activities:

--Dialogues, short narratives, slides and other materials are used to provide a framework for new material and to give some sense of "real world" language to the lesson.

--Students read, listen, watch, and strive to discern meaning.

--Teachers use an assortment of methods to promote comprehension: slides, props, pictures, tapes, translations, and various other means.

--Repetition and practice are essential and are usually done in a "broadcast mode" with a teacher addressing the class as a whole and calling on selected students for responses. The number of responses per individual student is frequently inversely proportional to class size.

It is further assumed that these activities which characterize most beginning language classrooms are necessary prerequisites to the frequently stated goal of foreign-language instruction--"communicative competence." This research is based on the conviction that an interactive videodisc learning system armed with pedagogically sound courseware offers an effective way to handle these necessary preliminary activities. In addition to helping students master the basics such a system would result in peripheral benefits such as an increase in the number of individual student interactions and more positive student attitudes toward the course and content.

Limitations

Jakobovits (1970) asserts that studies which are global in nature, that is, those which attempt to make broad methodological comparisons often do not produce valuable insights because they involve too many undefined or unmeasurable variables. There is some validity to this position; however, the paucity of information available which deals with videodisc instructional systems seems to justify a certain amount of "global" research in order to delimit more specific areas of interest.

Equipment restrictions also affected this research. The use of the TI99/4A microcomputer which has limited capabilities dictated a reduction to the scope and depth of the lesson design. The use of a more powerful microcomputer should alleviate this limitation in future research projects.

Another limitation was the fact that the experiment involved only ninety minutes of instruction. Ideally, further research efforts will be designed to evaluate at least a semester of instruction.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The literature reflects a polarization of the educational community in its reaction to the emerging "electronic revolution." Educators are sharply divided about what role technology should play in education. Even in the same journal, one can find an interesting mix of unrestrained optimism and irrational apprehension. The optimists claim that technology will revolutionize the instructional process and provide an effective panacea for many of the ills that plague classrooms of today. Evans (1979) predicts that computers will erode the power of such established professions as medicine, law and teaching. Such predictions cause a great deal of anxiety in educators who are skeptical about the use of technology in education and who fear that the electronic revolution may render classrooms, textbooks, and even teachers obsolete.

Somewhere between those who have embraced technology with open arms and those who staunchly resist its use falls a group of educators who are urging cautious optimism. Many foreign-language instructors fit into this category. These educators are excited about the potential of emerging technologies, but they remember two earlier "instructional revolutions" which proved to be great disappointments. The rather dismal failures of teaching machines in the sixties and language laboratories in the seventies have caused informed educators to react cautiously to this most recent wave of technology. These educators are guardedly enthusiastic about the potential of computers and videodisc players, but they urge caution. They insist on the need for a concerted effort to understand the capabilities of these new technologies so that they can be used to enhance instructional efforts. They stress that the use of technology for irrelevant purposes is inviting disaster. Alatis (1983) reminds us that "purchasing equipment in response to a 'technology push' and not on the basis of an 'educational pull' is a destructive practice that turns technology into a hostile intruder" (p 11). Cleveland (cited in Alatis, 1983) provides an accurate description of the dilemma educators face today:

> We are already well past the jaw-dropping, gee-whiz stage of technological wonder, and have

> internalized, even if most of us do not really understand, the prospect of trillions of transactions in nanoseconds of time. But we have not yet gotten very far in learning how to think, to theorize about the implications of the information society's technical wizardry for the way we live, work, and plan. The hardware can come up with the answer in seconds and communicate it around the world in minutes. But what was the question? (p. 10)

The question educators must continually strive to answer is how to translate the potential of technology into effective classroom activities which enhance and supplement the goals of their particular discipline. The following sentiment which has been repeated so frequently that the original source has long been obscured is becoming one of the truisms of this era--technology will not replace teachers, but teachers who know how to use technology will replace those who do not.

Many of the answers educators seek are not yet available; however, Heuston (1977) provides some interesting generalities which are applicable to most subject areas. He equates the potential of computers and videodisc technology to produce giant strides in "educational work efficiencies" (p 13) to that of the invention of the printing press 500 years ago. Heuston outlines four major instructional tasks which are common to all disciplines and contends that computer and videodisc technology will facilitate teachers in their efforts to execute these tasks:

1) Present needed information to a wide range of ability levels and learning strategies.

2) Provide as many trial and feedback opportunities as necessary to attain mastery of subject material.

3) Provide a learning environment which motivates students.

4) Replicate these activities for other students and share their techniques with colleagues.

Heuston maintains that most teachers do not have the time to accomplish these basic tasks in a very effective manner. He suggests that the capabilities of computers and videodisc offer an attractive remedy for this problem. Heuston tempers his enthusiasm with the following warning:

> But the most challenging task, as always with technology, will be to ensure that it is not misused. This may be a problem because the technology may be upon us before we are prepared . . . For this reason for the next ten to twenty years the general thrust of educational research and development should be focused on harnessing and learning how to handle this new additional source of work. (pp. 24-25)

Learning how to "harness" these new technologies involves the need to develop instructional strategies and designs which take into account the unique capabilities inherent in an intelligent videodisc system. Because a videodisc system is a unique combination of print, audiovisual displays, and interactive computer-based instruction, "models of instruction that prescribe how to

intersperse and integrate such delivery modes are now necessary" (Reigeluth & Garfield, 1980, p. 27). The development of such models represents a most arduous task. Goodland describes the difficulty of such an extensive overhauling of instructional strategies with the following analogy:

> Innovation is difficult, not just because this is its character but because the existing system must be maintained while the new one is being introduced. The educational ship is not in dry dock but must remain on the high seas while repairs are effected. It is not surprising then, that educators tend to tinker with the rigging, lowering the sails, and raising the sails, polishing the brightwork and swabbing the decks. Meanwhile, it is the hull that really needs changing but it dare not be tampered with for fear the ship will sink. Consequently most educational change is at the periphery and as a result, is inconsequential. (p. 92)

Fortunately, there is an emerging data base which will help educators avoid wasting their efforts on such inconsequential changes. Areas of particular interest to this research are Computer Assisted Instruction (CAI) and Intelligent Videodisc systems.

Related Research

By definition, intelligent videodisc is a combination of a videodisc player and an external microprocessor or minicomputer. Given this definition, research involving Computer Assisted Instruction (CAI) is considered inherently relevant to this review of the literature.

An early evaluation of CAI resulted from a 1969 project which examined the effectiveness and operational practicality of CAI in a government language school (Adams & Rosenbaum, 1969). The operational phase of the study was implemented in the Russian Aural Comprehension course at the Defense Language Institute (DLI) in Monterey, Calif. Subjects were chosen from 82 students in the November, 1968, Russian Aural class. The experimental group was closely matched to the non-CAI group on the basis of the Army Language Aptitude Test scores and grades received for the initial three weeks of the course. The following specific findings are of interest:

1) Operational integration of CAI into the DLI course and school was smooth.

2) CAI training was effective--students trained by CAI learned about as well as students in the non-CAI course.

3) CAI measures of student learning constituted highly reliable predictors of performance of trainees on DLI tests.

In the general conclusions the report indicated that CAI could lead to qualitative improvements in instruction, more efficient use of instructional staff and major savings in instructional time.

Two prototype computer-based instructional projects developed during the sixties greatly influenced the

development of more recent projects. The two projects, PLATO (Programmed Logic for Automatic Teaching Operations) and TICCIT (Time-Shared, Interactive, Computer-Controlled Information Television) were designed for college-level instruction.

Both projects were part of a five-year evaluation study conducted by the Educational Testing Service (Alderman, Appel & Murphy 1978). General findings indicated that PLATO did not affect student achievement but did generate positive reactions on the part of students and faculty. Results did indicate an improvement in student achievement for TICCIT but also a lower course completion rate. Researchers felt that the instructor played an important role in determining whether reactions were postive or negative. TICCIT is of great relevance to this study because it pioneered the strategy of student control.

Many of the reports describing CAI projects in language instruction are not well-documented or describe poorly designed projects. A few are mentioned here as an indication of prevailing positive attitudes toward CAI and its applications in foreign-language instruction. In spite of the lack of conclusive evidence as to the effectiveness of CAI, the reports reviewed do point out certain problems and insights which are relevant to this

research.

Marty and Myers (1975) reported initial evidence of a higher degree of retention in students participating in a CAI foreign language program at the University of Illinois. Their work was done as part of a long-term evaluation of the PLATO IV System. They hypothesized that CAI would result in higher levels of performance, increased amounts of learning per unit, higher levels of student motivation, and higher levels of retention. The report indicated that no meaningful testing of these hypotheses could take place until extensive programming problems had been solved.

The Ohio State University dedicated a great amount of funding to the development and implementation of CAI programs in two basic language courses, German 101 and 102 (Taylor, 1979). The programs--DECU (Deutscher Computer Unterricht) and TUCCO (Tutorial Computer)--were designed as supplements to classroom instruction and employed a tutorial approach. The exercises offered practice in grammatical concepts and provided analysis of wrong answers and clues leading to the correct response. Student reactions were assessed by means of a questionnaire. Results, given in percentages, were described as positive for both programs. In addition to the intended use by beginning students, the programs were also used by

advanced students for review. Taylor concluded that the computer might offer great potential for remedial work. No empirical evidence was provided.

Student reactions to another CAI supplementary program offering grammatical and cultural drills were gathered by Terry (1979). Beginning and intermediate French students responded to a yes/no questionnaire. Terry reported that reactions were favorable and enthusiastic. The most important benefit identified by the questionnaire was thought to be positive student attitudes. No formal studies were conducted to test the effectiveness of the use of the computer drills.

An excellent overview of the state of CAI in foreign language instruction in 1980 was provided by a survey conducted by Olsen. Of the 1,810 questionnaires mailed to foreign-language departments at four-year colleges in the United States, 602 were returned. Seventy-six were from departments with existing CAI programs or with plans to initiate one within two years. The remainder of departments responding had no CAI program and did not consider it an option. The author mentioned the limited value of the survey for a true analysis of departments using CAI because of the size and method of sampling used; however, the insights provided by the responses are relevant to this review of existing literature. Major

objections voiced by non-CAI departments were low cost-effectiveness, low student interest, and the inability of the computer to teach or improve language learning. Olsen attributed the prevalent resistance among language teachers to fear and suspicion of the computer and modern technology in general. He felt that the many negative remarks were based on "impressions, uninformed opinion or even prejudice" (p.342). The few critics who offered justification for their remarks made reference to an article by Magarell (1979) which found inconclusive evidence to support CAI in terms of student achievement. Respondents from departments using CAI reported continuing problems in cost of time-sharing, limited availability of terminals, lack of support from colleagues, lack of quality software, and expense of specialized keyboards. Positive remarks from user-departments cited the importance of positive student attitudes toward the programs. Equal proficiency of groups using computers and those exposed to traditional methods was felt to be offset by greatly superior positive attitudes exhibited by computer users.

Many of the arguments against CAI exposed by the Olsen survey have begun to lose credibility in the face of a growing body of research which supports the assertion that CAI does "work" and is often more

effective than more traditional approaches.

In a carefully designed, executed and documented experiment, Schaeffer (1979) investigated the effectiveness of structural and semantic computer practice of a specific grammatical concept. The decision to use the computer for meaningful practice as opposed to mere drill and practice is consistent with current language instruction theories. Although this study did not examine computer use versus non-computer use, the choice of the computer as the medium for investigation made it relevant to this research. The study supported previous research on the importance of meaningful practice in second-language learning. In addition, the study suggested that meaningful learning did not have to involve interaction between people. The computer was identified as an effective medium for meaningful learning.

Using a meta-analysis approach, Dr. James Kulik (1980), synthesized the research results and findings of 59 independent computer-based instruction studies in higher education. He came to the conclusion that computers produced a small but significant increase in the effectiveness of college teaching. The improvement shown by computer-based groups was evident for both high and low aptitude students. Kulik also found that

computer-based teaching resulted in slightly more positive attitudes towards the subject matter and the instruction. The most dramatic finding of this meta-analysis was that computer-based instruction took one-third less time than required by more conventional instructional methods.

Intelligent videodisc instruction, an extension of CAI, is of particular interest to this research. While still fledgling in size the evolving body of knowledge about such instructional systems is already providing empirical evidence to support the intuition that an interactive videodisc system should be as effective as its parent, computer assisted instruction, or more so.

Two projects which have been investigating the feasibility of using intelligent videodisc systems in an instructional setting are of primary interest to this review even though they do not deal specifically with foreign-language instruction.

The University of Nebraska has developed a low-cost videodisc course for the physical sciences which uses film footage of the Tacoma Narrows Bridge collapse. Winch (cited in Molnar, 1982) reports that 90% of the students involved said they would like to take more physics courses by videodisc.

A second exploration into the potential of videodisc

instruction has been conducted by Dr. C. V. Bunderson of WICAT in Orem, Utah (1981). In this case, an intelligent videodisc system has been used to teach an entire biology course including laboratories. Results of the study indicate that students receiving videodisc instruction scored significantly higher on posttests than students who received instruction from a classroom lecture and textbook. In fact the videodisc group scored 8-16% better on objective items; 24-75% better on short answer items; and 15-27% better on achievement tests. The average total study time of the videodisc group was 30% less than the regular classes.

Another study conducted at the University of Arkansas College of Education compared two instructional methods for Study Skill courses. A traditional lecture presentation was compared to Computer-Directed Instruction (CDI), which was defined as a combination of computer and video. Results showed that the CDI group did significantly better on posttests than the group that received instruction in a more traditional manner (Boen,1982). Although this study dealt with video tape instead of videodisc, the fact that interaction and computer control were involved makes it relevant to this review.

A similar project conducted recently by the German

Section of the U.S. Air Force Academy's Department of Foreign Languages compared conventional methods of presenting video materials to beginning college German students with an interactive method of presentation (Schrupp, Bush & Mueller, 1983). Researchers found that students who were allowed to interact with the film being presented did significantly better than those who passively watched the same film.

The growing empirical support for the effectiveness of CAI in general and in particular in college teaching as well as the very positive preliminary results available from on-going studies as to the effectiveness of videodisc based instruction, provide ample justification for further research in these areas. The following assumptions were the key motivating factors in the conceptualization and design of this study:

1) Recent research findings, described above, lend credibility to the potential effectiveness of an intelligent videodisc instructional system in college-level foreign language classrooms.

2) Many of the shortcomings of earlier CAI applications will be alleviated by the interface of microcomputers and videodisc technology.

3) There is a great need for empirical data to support our intuitive belief in the potential instructional effectiveness of these new technologies in general and specifically in foreign-language instruction.

CHAPTER III

STUDY DESIGN AND PROCEDURE

Population and Sample

The study was conducted at the United States Air Force Academy in Colorado during the Fall 1983 semester. A sample was drawn from a population consisting of students enrolled in the beginning French course at the Academy, French 131. Students are placed in this course if they have no prior French instruction or if they score below a predetermined level on a comprehensive Placement/Validation Examination administered before their first semester at the Academy. The following factors contributed to the selection of this particular population group. First, language instruction at the Academy is standardized; that is, all classes at the basic level (French 131/132) have the same course content and similar methods of instruction. Second, the Department of Foreign Languages is involved in related

experimentation and offered to provide materials and equipment necessary for this research project. Third, beginning students are of interest because there is very little on-going research directed at this level student.

Classes at the Academy are organized around "M" and "T" day sequence. "M" day classes meet every other day starting with the first day of the semester; "T" day classes meet every other day starting with the second day of the semester. The sample for this research was drawn from eight sections of the beginning French course (F131). Four of these eight sections met on "M" days and four met on "T" days. The treatment phase of the project required two regular classroom meetings. Since some of students in all eight sections were involved in one of the three groups, the treatment had to extend over two "M"/"T" sequences or four days. The posttest required another "M"/"T" day sequence or two days. The need to work within this "M"/"T" framework as well as equipment restrictions (only five videodisc learning stations were available for use) necessitated a rather complex algorithm for assignment to treatment group. The study involved a comparison of instructional methods, videodisc versus classroom, and was organized around the following treatment groups:

1) Treatment Group 1 (T1), the Videodisc Group, consisted of students who received

instruction via an intelligent videodisc system.

2) Treatment Group 2 (T2), the Classroom Group, consisted of students who received instruction from an instructor in their normal classroom.

3) Treatment Group 3 (T3), the Control Group, consisted of students who received no instruction.

The two intact classrooms which comrised T2 (Classroom Group) were randomly selected from the eight sections of the beginning French Course. The two sections selected had a combined enrollment of 28. From each of the remaining six sections, 5 students were randomly selected to form T1 (Videodisc Group). Students not selected for T1 or T2 were designated T3 (Control Group). The size of the treatment groups 1 and 3 was adjusted to that of the Classroom Group, $\underline{n}$ = 28. A further adjustment was necessary because two students in T2, Classroom Group, were unable to complete the treatment because of conflicting scheduling requirements. This final adjustment resulted in three groups of equal size ($\underline{n}$ = 26). Adjustments were done randomly.

Experimental Design

The use of intact classrooms made a quasi-experimental design necessary. Specifically, a

modification of the "Compromise Experimental Group/ Control Group" (Kerlinger, 1964, p. 315) was selected:

x1 Y (Experimental)

x2 Y (Experimental)

-X Y (Control)

The independent variable, type of instruction, consisted of three levels:

1) Instruction via a videodisc learning system.
2) Instruction from an instructor in the classroom.
3) No instruction.

The dependent variable, a multiple choice/short answer test was designed to measure the effects of receiving instruction in a classroom from an instructor versus receiving instruction via an intelligent videodisc system.

Instruments

The criterion measurement (dependent variable) was a 28-item posttest subdivided as follows: (1) seven listening comprehension multiple choice items; (2) seven vocabulary discrimination items; (3) seven multiple choice verb/grammar items; (4) seven completion items (verbs and vocabulary). (see Appendix A-1 for a copy of the posttest.) Content validity for the measurement

instrument could be assumed because the curricula of both treatment groups receiving instruction were identical. Further validation was provided by a review of the posttest by five French instructors, three from the University of Kansas and two from the United States Air Force Academy. The material for the Listening Comprehension section of the test was recorded in the language laboratory at the Academy by a native French speaker who frequently records materials for the beginning language students. All items in this section were based on the video/audio segments which had been used during the instruction phase of the experiment. Students saw no text during this portion of the test. All students took the test in their normal classroom.

Treatment Development

A videodisc-based beginning French lesson was developed from materials contained on a videodisc produced by the United States Air Force Academy and the Defense Language Institute. The disc was mastered from a cassette/slide instructional package produced by CREDIF, an agency of the French government. The package, entitled De Vive Voix, is organized around a series of dialogues which introduce new vocabulary, verbs, and structure. Materials selected from the videodisc were carefully screened to ensure that they fit semantically

and syntactically with existing curriculum goals for the beginning French course from which the sample was to be drawn.

Conceptualization and development of the project lesson was guided by the assumption that an "intelligent" videodisc system could be used to accomplish preliminary language activities which accompany the presentation of new material and which are prerequisites to communication in the target language. The videodisc segment which had been selected presented the following new materials (new is defined as material not specifically covered in the F 131 course prior to the experiment): 13 vocabulary items, three verbs, and one grammar concept. (See Appendix B-1 for a copy of lesson materials.) The lesson was designed to introduce the dialogue with an emphasis on comprehension and then "teach" the specific vocabulary items, verbs, and grammar. Utilizing the unique capabilities of the videodisc medium and incorporating as many student control options as possible were primary concerns throughout the development of the lesson.

The programming phase of the lesson development was a lengthy process fraught with frustrations, many of which were hardware related. The TI99/4A microcomputer was selected because Texas Instruments had a research agreement with the United States Air Force Academy. The

agreement provided for enough equipment to make an experiment feasible. The other hardware component, the Sony LDP 1000 videodisc player was chosen because the Department of Foreign Languages at the Academy was in the process of securing several Sony players. The player used for the developmental phase of this project was loaned to this researcher by Video Masters, Inc. of Kansas City, Mo. Selection of a programming approach was another important decision of the developmental phase. Wyatt (1983) identified three possible approaches:

1) an educational authoring system

2) an educational programming language

3) a general purpose programming language

The authoring system and the educational programming language available for the TI99/4A were considered too restrictive for the development of an effective interactive lesson. The third approach, the use of a general purpose programming language, offered more flexibility but also required the skills of a computer programmer. Through the cooperation of the Computer Science Department at the University of Kansas, a talented student working towards a Master's degree in Computer Science was identified and given credit to work on a project. All programs were written in the Extended Basic language. Every effort was made to exploit the

limited capabilities of the TI99/4A and to utilize the unique aspects of the videodisc player. The completed lesson consisted of ten activities which were identified to the student through a menu. Students were allowed to choose the activities in whatever sequence they preferred (See Appendix B-2 for a copy of student instructions.) Through the use of student control options, students could skip or repeat lesson materials and get help from a reference section which included a French/English glossary and verb charts. (See Appendix B-2 for a copy of student reference materials.) The lesson activities developed for the videodisc system were reviewed by instructors at the Air Force Academy. The review group included French instructors and instructors of other languages and thus provided a critique of content validity as well as overall organizational strategy.

Implementation and Procedures

The experiment was conducted during three regularly scheduled recitations of the beginning French course (F 131). Students assigned to the Videodisc Group (T1) received instruction via intelligent videodisc learning stations consisting of a Texas Instruments 99/4A microcomputer interfaced to a Sony LDP 1000 videodisc player. Students spent two class sessions for a total of

90 minutes working through the lesson. Students assigned to the Classroom Group (T2) received instruction over exactly the same materials for the same amount of time from an instructor in a classroom setting. The instructor was randomly selected and was able to use any desired method of presentation. The instructor was also allowed to use any type of audio-visual support deemed appropriate. The instructor opted to use a very dynamic presentation method which allowed for more frequent student interactions than found in the typical foreign-language classroom. The method included the following steps:

1) PRESENTATION: Slides and cassette recordings were used to introduce the dialogue.

2) EXPLANATION: Slides and cassette recordings were used to help the instuctor act out the meaning of each dialogue segment. During this stage the instructor made an effort not to use English.

3) REPETITION: Students listened and watched each dialogue segment three or four times. They were then asked to imitate what was being said using correct intonation and gestures.

4) REVIEW: The instructor asked students for English equivalents for each dialogue segment.

The audio-visual materials used during the classroom instruction were exactly like the videodisc materials. The combination of a skillful instructor and a dynamic presentation added an interesting dimension to the

experiment. The comparison became that of intelligent videodisc versus an excellent classroom presentation rather that a typical classroom presentation. Both the Classroom Group and the Videodisc Group were given a ten-minute introduction to the activities in which they would participate during the experiment. The fact that both treatment groups were receiving instruction in novel situations strengthened the internal validity of the study. The Videodisc Group received a handout with information about how to use the system and an explanation of what student control options were available. (See Appendix B-2 for a copy of this handout.) Students in the classroom group were also given an explanatory handout which included a reference sheet with vocabulary words and verb charts. (See Appendix B-3.) Such materials were available to the Videodisc Group by use of the student control option HELP. In order to ensure that the content and emphasis of both instructional methods were identical, the classroom instructor was asked to review the lesson designed for the videodisc system and the posttest. The two intact classrooms which formed the Classroom Group each had 14 students. (Two students were not able to complete the treatment.) These students met with the instructor during their normally scheduled class session. The students in

the Videodisc Group worked in the language laboratory where the videodisc learning stations were located. Five learning stations were used in each classroom period with two back-up stations. A monitor was present at all times to assist students with machine-related problems. Students used headsets as they worked through the activities and thus were not distracted by extraneous noises and activities. Students in the Control Group received no instruction and had no exposure to the lesson materials. Students in all three treatment groups were asked not to study French outside the classroom for the duration of the experiment. During the third classroom session allotted for the project, all students took a multiple choice/completion test designed to measure mastery of the lesson materials. (See Appendix A-1 for a copy of the posttest.) Students who were assigned to the Videodisc Group were asked to complete a user satisfaction survey to evaluate their overall attitude towards the videodisc system and lesson design. (See Appendix A-2.)

Analysis of Data

The fact that complete randomization was not possible plus the use of an overall algorithm for all student scheduling at the Academy caused some question as to the equivalency of the treatment groups. In order to

establish equivalency, analysis of variance (ANOVA) procedures were conducted with the following variables: academic composite, grade-to-date, and semesters of French. (See the Operational Definitions section for an explanation of these variables.)

ANOVA procedures were also used to analyze posttest scores and subsets of posttest scores. The subsets were the multiple choice section of the test and the completion section. Survey data were subjected to descriptive statistical analyses to determine frequencies, means, medians, and modes.

All data analyses were done with procedures available through the *Statistical Package for the Social Sciences* (SPSS) and run on the CDC 6000 computer at Fort Leavenworth, Kansas. The following hypothesis of no difference was tested:

Hypothesis: There is no significant difference in the effectiveness of instruction from an instructor versus instruction via an intelligent videodisc learning system in achieving mastery of beginning French vocabulary, verbs, and grammar as measured by a multiple choice/completion test.

CHAPTER IV

RESULTS OF THE STUDY

Introduction

The study compared the effectiveness of two methods of instruction, videodisc instruction versus classroom instruction, for the presentation of new materials to beginning French college students. Subjects were randomly assigned to the following treatment groups:

1) Videodisc Group: Students received instruction via an intelligent videodisc system.

2) Classroom Group: Students received instruction from an instructor in their classroom.

3) Control Group: Students received no instruction.

The criterion measure was a 28-item posttest which contained multiple choice and completion items (see Appendix A-1 for a copy of the posttest). A Kuder-Richardson #20 reliability coefficient of .79 was com-

puted for the posttest. Students assigned to the Videodisc Group were asked to complete a user-satisfaction survey in addition to the posttest. (See Appendix A-2 for a copy of the survey.) The following phases of data analysis were completed through use of the Statistical Package for the Social Sciences (SPSS): equivalency of groups, test of research hypothesis, supplemental analysis of posttest components, and analysis of user-satisfaction results.

Group Equivalency

Equivalency of the three treatment groups could not be assumed because of the use of intact classrooms and the possibility of biases in the algorithm used for all student scheduling at the Academy. In such situations, Kerlinger (1964) encourages checking the equivalency of groups with comparison on pertinent variables. The following variables were relevant and were available for all subjects: academic composite, grade-to-date, semesters of French (see the Operational Definitions section for an explanation of these terms.) Table 1 presents the results of a one-way analysis of variance performed on these dependent variables. For these analyses, the grouping variable with three levels, videodisc, classroom, and control, was the independent variable. The results indicated no significant differences in the

The results indicated no significant differences in the three groups for any of the variables and allowed the assumption of equivalency. Table 2 presents means and standard deviations for the three dependent variables.

TABLE 1

Summary of Analysis of Variance to Establish Group Equivalency using Academic Composite, Grade-to-date and Semesters of French as Variables.

Source	df	f	p
Academic Composite	(2,75)	1.427	n.s.
Grade-to-Date	(2,75)	.302	n.s.
#Semesters of French	(2,75)	.664	n.s.

TABLE 2

Summary of the Means and Standard Deviations for the Academic Composite, Grade-to-Date, and Semesters of French Variables.

		Videodisc	Classroom	Control
Academic Composite	n	26	26	26
	Mean	3102.12	3000.38	3003.85
	S.D.	285.76	237.77	210.13
Grade-to-Date	n	26	26	26
	Mean	2458.58	2421.85	2453.88
	S.D.	214.43	194.38	139.03
Semesters of French	n	26	26	26
	Mean	3.08	2.46	2.50
	S.D.	2.21	2.23	2.02

Research Hypothesis

Means and standard deviations for the posttest measurement are presented in Table 3. Inspection of the mean scores for each group reveals that the Videodisc Group mean scores were 2.3 points (8%) higher than the Classroom Group. As expected, mean scores for the levels of the independent variable which received instruction, Videodisc Group and Classroom Group, were higher than the mean score for the Control Group which received no instruction. The mean score for the Videodisc Group was 7.9 points (28%) higher, while the mean score for the Classroom Group was 5.5 points (20%) higher than the Control Group mean score. The larger standard deviations for both the videodisc and classroom groups support the theory that learning produces groups which are more heterogeneous.

Posttest results were submitted to a one-way analysis of variance. As Table 4 indicates, there was a significant difference in the performance of the three groups ($p < .001$). Scheffé Post Hoc procedures were used to determine the source of significance. Data in Table 5 show that the Control Group mean was significantly different from the means for the treatment groups. Although the Videodisc Group scored higher than the Classroom Group, ($\bar{X} = 22.62$ versus $\bar{X} = 20.38$), the mean

TABLE 3

Means and Standard Deviations
for the Posttest Measurement

TREATMENT GROUP	n	Mean	SD
Videodisc Instruction	26	22.62	4.40
Classroom Instruction	26	20.38	4.59
No Instruction	26	14.77	3.67

TABLE 4

Summary of Analysis of Variance
for the Posttest Measurement

SOURCE	df	MS	F	p
Between Groups	2	424.974	23.629	<.001
Within Groups	75	17.986		

TABLE 5

Significant Differences Among Treatment Group Means on the Posttest Measurement (Scheffé Post Hoc Procedures)

	Posttest		
Treatment Group	T1	T2	T3
T1 (Videodisc)	---	n.s	*
T2 (Classroom)	---	---	*
T2 (Control)	---	---	---

* $p < .05$

difference was not statistically significant. It should be pointed out however, that this difference of 8% is often of very practical importance in the assignment of grades in a language classroom. Nonetheless, the results of the analysis of the data do not permit rejection of the research hypothesis:

HYPOTHESIS: There is no significant difference in the effectiveness of instruction from an instructor versus instruction via an intelligent videodisc learning system in achieving mastery of beginning French vocabulary, verbs, and grammar as measured by a multiple choice/completion test.

Posttest components

Although not a part of the original experimental design, results from some post hoc analyses on the posttest measure are of interest to the overall purpose of this research. As mentioned previously, this research effort was global in nature and not designed to investigate specific language skills. While the posttest included sections of listening comprehension, vocabulary discrimination, verb/grammar selection items and completion items which required the student to supply an answer, it was evaluated as a total measurement of mastery rather than by specific skill sections. The test was designed to resemble the tests normally

administered in the beginning French course at the Academy and to reflect the types of activities used in the experiment. Although analysis of the posttest by sections was not needed to answer the question posed by this research, some supplemental analyses of the available data were performed. Of particular interest were the findings from a comparison of multiple choice items and the completion items. Table 6 presents the means and standard deviations for these two components of the test. As seen in Table 7, an analysis of variance of the performance of the three groups reflected significant differences for both the multiple choice and completion sections of the posttest.

Scheffé post hoc procedures reported in Table 8 revealed that the significant difference for the multiple choice items of the test was once again between the group which received instruction and the group which received no instruction. Table 8 also presents results for the completion section of the posttest. In addition to the expected difference between the instructed and non-instructed groups, a significant difference was detected between the Videodisc Group and the Classroom Group ($p < .05$). The Videodisc Group mean score was significantly higher than the mean score of the Classroom Group on the completion questions of the posttest.

TABLE 6

Means and Standard Deviations for the Multiple Choice and Completion Sections of the Posttest

	Multiple Choice			Completion		
Treatment Group	n	Mean	SD	n	Mean	SD
Videodisc Group	26	17.62	3.87	26	5.0	1.41
Classroom Group	26	17.35	3.11	26	3.04	1.93
Control Group	26	13.5	2.75	26	1.27	1.48

TABLE 7

Analysis of Variance for Multiple Choice and Completion Components of Posttest

Source	df	MS	F	p
Multiple Choice				
Between Groups	2	137.807	12.847	< .001
Within Groups	75	10.727		
Completion				
Between Groups	2	90.551	34.286	< .001
Within Groups	75	2.641		

TABLE 8

Significant Differences Among Treatment Group Means for Multiple Choice and Completion Sentions of the Posttest Measurement (Scheffé Post Hoc Procedures)

	Multiple Choice			Completion		
Treatment Group	T1	T2	T3	T1	T2	T3
TI (Videodisc)	---	n.s.	*	---	*	*
T2 (Classroom)	---	---	*	---	---	*
T3 (Control)	---	---	---	---	---	---

* $p < .05$

User-Satisfaction Survey

Students in the Videodisc Group completed a 24-item user - satisfaction survey and were asked to list five things they liked and five things they didn't like about the videodisc system. (See Appendix A-2.)

Table 9 presents the frequencies, percentages, and measures of central tendency for survey responses. On all items except those with an asterisk, modal scores of 4 or 5 and mean scores of 4 or higher reflect very positive student attitudes toward the videodisc learning system. For the items marked with an asterisk, low modal and mean scores are indicative of positive attitudes.

In addition to responding to the survey items, students were asked to list five things they liked about the videodisc learning experience and five things they did not like. Table 10 presents the most frequently listed likes and dislikes, the number of times each was listed and the percentage of students listing each one. Frequencies are lower for the dislikes because some students listed only one or two things they disliked. In addition, the dislikes that were listed were much more diverse than the likes.

These most frequently listed dislikes point to both software and hardware problems. Software problems are those relating to the lesson design and are illustrated by dislikes 2 and 5. Hardware problems are inherent to

the microcomputer and videodisc player. Items 1 and 3 above reflect hardware problems. Item 4, screen position, is not software or hardware related but rather a function of the learning environment.

Summary

The results of the analyses of the data do not permit a rejection of the research hypothesis. Although mean score of the Videodisc Group on the posttest measurement was higher than the mean score of the Classroom Group, the difference was not large enough to reach statistical significance. Analysis of components of the posttest, multiple choice and completion items, did reveal a significant difference in mean scores for the completion items. The mean score of the Videodisc Group was significantly higher than the mean score of the Classroom Group ($p < .05$). Results of the user-satisfaction survey indicate very positive attitudes toward the videodisc learning system.

TABLE 9

Summary of the Results of the
the User-Satisfaction Survey

1	2	3	4	5
DISAGREE STRONGLY	DISAGREE	NEUTRAL	AGREE	AGREE STRONGLY

	ITEM	RESPONSE	FREQ	PERCENT	MODE	MEDIAN	MEAN
#1	I enjoyed the one-on-one nature of the videodisc	4	11	42.3	5	4.63	4.57
		5	15	57.7			
#2	I found that the time passed quickly while using the video disc system.	2	3	11.5			
		3	2	7.7	5	4.65	4.26
		4	6	23.1			
		5	15	57.7			
#3	I prefer studying a foreign language in a classroom setting.*	1	2	7.7	2	2.5	2.61
		2	11	42.3			
		3	8	30.8			
		4	5	19.2			
#4	I enjoy using computers to learn new material.	3	1	3.8	5	4.63	4.53
		4	10	38.5			
		5	15	57.7			
#5	I prefer learning a foreign language from an instructor.*	1	2	7.7	3	2.95	2.88
		2	6	23.1			
		3	11	42.3			
		4	7	26.9			

* Low mean and modal scores for this item are indicative of positive attitudes toward the videodisc system.

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TABLE 9 (continued)

Summary of the Results of the
User-Satisfaction Survey

1	2	3	4	5
DISAGREE STRONGLY	DISAGREE	NEUTRAL	AGREE	AGREE STRONGLY

ITEM	RESPONSE	FREQ	PERCENT	MODE	MEDIAN	MEAN
#6 I would recommend videodisc learning to other beginning language students.	2	2	3.8	4	4.41	4.34
	3	1	3.8			
	4	12	46.2			
	5	12	46.2			
#7 I felt the material presented was the right level for my abilities.	1	1	3.8	5	4.25	4.03
	2	1	3.8			
	3	5	19.2			
	4	8	30.8			
	5	11	42.8			
#8 I used the student-control options frequently.	1	4	15.4	4	3.21	3.03
	2	4	15.4			
	3	7	26.9			
	4	9	34.6			
	5	2	7.7			
#9 I prefer studying languages with other students around.*	1	3	11.5	3	3.0	2.96
	2	5	19.2			
	3	10	38.			
	4	6	23.1			
	5	2	7.7			
#10 I understood what the important parts of the lesson were.	2	1	3 8	5	4.4	4.3
	3	2	7.7			
	4	11	42.3			
	5	12	46.2			

* Low mean and modal scores for this item are indicative of positive attitudes toward the videodisc system.

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TABLE 9 (continued)

Summary of the Results of the
User-Satisfaction Survey

1	2	3	4	5
DISAGREE STRONGLY	DISAGREE	NEUTRAL	AGREE	AGREE STRONGLY

ITEM	RESPONSE	FREQ	PERCENT	MODE	MEDIAN	MEAN
#11 I enjoyed being able to choose which section of the lesson I wanted to work on.	3	5	19.2	4	4.2	4.19
	4	11	42.3			
	5	10	38.5			
#12 I found the student-control option "redo" useful.	2	1	3.8	5	4.5	4.15
	3	7	26.9			
	4	5	19.2			
	5	13	50.0			
#13 I didn't like having to respond to every question.*	1	6	23.1	2	2.27	2.3
	2	9	34.6			
	3	8	30.8			
	4	3	11.5			
#14 I didn't use the "help" option.*	1	4	15.4	2	2.1	2.34
	2	15	57.7			
	3	2	7.7			
	4	4	15.4			
	5	1	3.8			
#15 I prefer being required to complete exercises in a pre-determined order.*	1	2	7.7	3	2.7	2.69
	2	9	34.6			
	3	10	38.5			
	4	5	19.2			

* Low mean and modal scores for this item are indicative of positive attitudes toward the videodisc system.

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TABLE 9 (continued)

Summary of the Results of the
User-Satisfaction Survey

1	2	3	4	5
DISAGREE STRONGLY	DISAGREE	NEUTRAL	AGREE	AGREE STRONGLY

ITEM	RESPONSE	FREQ	PERCENT	MODE	MEDIAN	MEAN
#16 I liked getting feedback every time I made a response.	2	2	7.7	4	4.14	4.07
	3	2	7.7			
	4	14	53.8			
	5	8	30.8			
#17 I would have liked more explanation about how to	1	4	15.4	2	2.5	2.69
	2	9	34.6			
	3	5	19.2			
	4	7	26.9			
	5	1	3.8			
#18 I prefer having a textbook when I study language.*	1	4	15.4	3	2.5	2.5
	2	9	34.6			
	3	10	38.5			
	4	2	7.7			
	5	1	3.8			
#19 I liked being able to skip questions or exercises.	2	1	3.8	4	3.8	3.76
	3	8	30.8			
	4	13	50.0			
	5	4	15.4			
#20 I liked being able to decide how much time I wanted to spend on an exercise.	2	1	3.8	5	4.5	4.3
	3	3	11.5			
	4	9	34.6			
	5	13	50.0			

* Low mean and modal scores for this item are indicative of positive attitudes toward the videodisc system.

(Continued on next page)

TABLE 9 (continued)

Summary of the Results of the
User-Satisfaction Survey

1	2	3	4	5
DISAGREE STRONGLY	DISAGREE	NEUTRAL	AGREE	AGREE STRONGLY

ITEM	RESPONSE	FREQ	PERCENT	MODE	MEDIAN	MEAN
#21 I liked the frequent repetition.	1	1	3.8	4	3.88	3.65
	2	4	15.4			
	3	3	11.5			
	4	13	50.0			
	5	5	19.2			
#22 I missed being able to "speak" the language.	1	3	11.5	4	3.5	3.19
	2	5	19.2			
	3	5	19.2			
	4	10	38.5			
	5	3	11.5			
#23 I thought the illustrations (video frames) helped me understand what was being said.	2	1	3.8	5	4.68	4.5
	3	1	3.8			
	4	8	30.8			
	5	16	61.5			
#24 I did not like the use of "menus." *	1	4	15.4	2	2.06	2.15
	2	16	61.5			
	3	4	15.4			
	4	2	7.7			

* Low mean and modal scores for this item are indicative of positive attitudes toward the videodisc system.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Overview

The electronic revolution is causing great excitement among educators. Rapidly emerging technologies promise unparalled educational innovations now and in the future. Educators are under pressure to update instruction techniques with new technologies. Fortunately, most educators realize that merely acquiring the products of technology will not automatically lead to an effective utilization of their vast capabilities. Understanding what technology can do to enhance educational efforts is a critical prerequisite to the integration of technology into the educational system. The speed with which technologies are developing is forcing educators into a breakneck sprint to keep abreast of the developments. What is missing is the slow, deliberate training program which should precede any race. Getting in shape for the technological revolution

of our schools will not be an overnight process. This study grew out of a desire to contribute to the very small data base from which educators can now gather needed insights and information. The technology of primary interest to this research was the combination of microcomputors and videodisc players ("intelligent videodisc") and its application in beginning foreign language courses. The study investigated the effectiveness of instruction via such a videodisc system as compared with traditional classroom instruction. Beginning college French instruction was the focus of this study.

The experiment was conducted at the United States Air Force Acedemy in Colorado. Subjects (N=78) were randomly assigned to two instruction groups and one control group. The Videodisc Group (n=26) received instruction via an intelligent videodisc system while the Classroom Group (n=26) received instruction from an instructor. The videodisc used for the experiment was mastered from the slide/cassette materials of the De Vive Voix series developed by the French government. The disc contained a series of dialogues with still-frame illustrations of each conversational exchange. The dialogue selected for use in this study was chosen because it presented materials which were compatible with the curri-

culum of the French course from which subjects were to be drawn. The lesson developed around this dialogue presented 13 new vocabulary items, 3 new verbs, and one grammatical concept. Students in the Videodisc Group worked through the lesson on the videodisc system. Students in the Classroom Group received instruction over identical materials. Both groups were instructed for 90 minutes. The Control Group did not receive instruction over any of the material.

All subjects took a 28-item multiple choice/completion posttest to determine the level of mastery of lesson materials. The posttest replicated the type of exams normally used in the beginning French course at the Academy and reflected the activities included in the experimental lesson. A Kuder-Richardson #20 reliability coefficient of .79 was computed. Students in the Videodisc Group also completed a 24-item user-satisfaction survey and responded to open-ended questions about the videodisc system.

Summary of Findings

The analyses of data indicated differences beyond the .01 level for the three treatment groups on the posttest measurement. As expected, Scheffé post hoc procedures revealed that significant differences existed between the two instructional groups and the control

group which received no instruction. Although the difference in mean scores between the Videodisc Group and the Classroom Group was not large enough to be significant, it is important to note that the Videodisc Group did outperform the Classroom Group. Supplemental analyses which were not part of the original experimental design were conducted for two component parts of the posttest, the multiple choice section and the completion section. Analysis of Variance revealed significant differences for the three groups on both components of the posttest. Scheffé follow-up procedures indicated that the significant difference for the multiple choice section was attributed once again to the Control Group which received no instruction. However, post hoc procedures revealed that the mean score for the Videodisc Group was significantly higher than the mean score for the Classroom Group for the completion section of the posttest ($p < .05$).

The following research question was posed in Chapter I: Are there differences in student achievement as measured by objective test items (multiple choice/completion) for the two instructional methods; i.e., videodisc versus classroom?

The results of the study do not reveal a significant difference between the mean scores of the two

instructional groups on the posttest measurement. However, the Videodisc Group did outperform the Classroom Group (The Videodisc mean score was 22.62; the Classroom Group had a mean of 20.38). This 8% difference in mean scores is of very practical significance for most language classrooms. Supplemental analyses performed on the multiple choice section and the completion section of the posttest revealed that students in the Videodisc Group performed significantly better on the completion questions than students in the Classroom Group ($p < .05$). Although not hypothesized as a probable outcome, the superior performance by the Videodisc Group on the completion items of the posttest is consistent with current learning theory dealing with feedback and time-on-task. While completing the videodisc activities, students were stopped after a wrong answer and asked to try again. If they chose to, they could then request a reference section and find the correct answer. Most students stayed with each question until they got the correct answer thus increasing the amount of time on task. Students in the Classroom Group did not receive immediate feedback and made frequent errors on exercises. The instructor was unable to monitor each individual's work for every exercise. The superior performance on completion items is also consistent with results of a

study by Bunderson (1981) which reported 24-73% higher scores for videodisc instruction groups on completion items and only 8-16% higher scores by the same groups on multiple choice items.

Although the mean score difference between the Videodisc Group and the Classroom Group was not large enough to be statistically significant, the fact that the Videodisc Group did score higher than the Classroom Group lends support to the underlying assumption of this study. The conceptualization and design of the research experiment was guided by the belief that an intelligent videodisc system armed with pedagogically sound software could provide effective instruction for certain components of beginning language learning. The performance of the Videodisc Group on the posttest measurement indicates that these students learned as much and perhaps more than the students in the Classroom Group. It is important to note that the classroom instructor (selected at random) was an experienced and effective instructor who chose a dynamic presentation method which afforded more opportunity for student interactions than usually available in a classroom setting. The instructor was familiar with the experimental goals and activities and had reviewed the posttest measurement. Thus, the experiment in effect

compared instruction via a videodisc system versus excellent classroom instruction.

The very positive and enthusiastic reaction of students to the videodisc system as indicated by the user-satisfaction survey and student comments, offers further evidence that an intelligent videodisc system can be an effective teaching medium.

Limitations of the Study

Certain limitations must be kept in mind when interpreting the results of this research. As indicated previously, there were significant limitations inherent to the hardware available for this study (TI99/4A microcomputer). Lesson design and goals had to be simplified and revised to stay within the capabilities of the hardware. The excessive loading time which resulted was forseen as a probable source of irritation for students. Student comments confirmed this prediction. Hopefully this limitation will not be a factor in future research efforts. The hardware is available to permit the development of more sophisticated lessons.

Another factor which limited the overall scope of the lesson design was the videodisc itself, which was a very simplistic application of available technology. The disc offered only still frames and did not take advantage

of the two-track audio capability of the disc medium. The use of a more innovative disc will allow future researchers to design more appealing and creative lesson materials.

Recommendations for Future Research

This study investigated the effectiveness of a videodisc learning system for the instruction of beginning French students. Before definitive conclusions regarding the effectiveness of such a system can be made, this study must be replicated with other populations, languages and language levels. In addition to replications which would be global in design, experiments dealing with specific language skills are needed to fully investigate the potential of a videodisc learning system. Research which would yield information about lesson design such as the use of still frame versus motion sequences, and the optimum mix of text and audio is also necessary.

The study of learning strategies should be an integral part of future research efforts. Tracking sequencing decisions made by students and monitoring the use of control options should provide invaluable information for future lesson designs. Also, research to investigate aptitude treatment interactions might provide valuable insights into how to develop interactive

materials appropriate for various learning styles.

This study sought to assess student attitudes toward the use of a videodisc learning system. Future research should attempt to further clarify which aspects of such systems create positive student attitudes and improve student motivation. Along these lines, studies investigating the effectiveness of various types and schedules of feedback would be useful.

Research efforts most critically needed are long-term projects which would allow an evaluation of many aspects of a videodisc learning system which are difficult to assess in short-term studies. The results of such studies would provide the empirical basis needed to support and clarify the intuitive belief that a videodisc learning system can be used to provide effective instruction for certain components of language learning.

Appendix A. Instruments

1. Posttest Measurement
2. User-Satisfaction Survey

Appendix A-1: Posttest Measurement

NAME _____

SSN _____

THE FOLLOWING EXERCISES ARE PART OF A RESEARCH PROJECT UNDER DEVELOPMENT AT THE UNIVERSITY OF KANSAS. YOUR RESPONSES TO THESE EXERCISES ARE AN INTEGRAL PART OF THE RESEARCH EFFORT. PLEASE ANSWER TO THE BEST OF YOUR ABILITY. THANK YOU FOR YOUR HELP.

BE SURE TO PUT YOUR NAME AND SSN ON THIS BOOKLET AND ON THE ANSWER SHEET. PARTS I, III AND IV WILL BE COMPLETED BY MARKING YOUR RESPONSE ON THE ANSWER SHEET. ONCE YOU BEGIN PART III, YOU MAY NOT GO BACK TO PART I OR II.

PART I LISTENING COMPREHENSION

PART II COMPLETION

PART III VERBS/STRUCTURE

PART IV VOCABULARY DISCRIMINATION

PART I - LISTENING COMPREHENSION

WATCH AND LISTEN TO THE FOLLOWING SCENES WHICH SHOW PIERRE AND MIREILLE ON A TRIP TO THE MOVIES. EACH SCENE WILL BE SHOWN TWICE. YOU WILL THEN HEAR THREE STATEMENTS. THESE STATEMENTS WILL BE REPEATED. DECIDE WHICH OF THE THREE BEST DESCRIBES THE SCENE YOU JUST WATCHED. USE THE WORK SPACE BELOW TO MARK YOUR ANSWERS AS YOU LISTEN. AT THE COMPLETION OF THE EXERCISE, PLEASE TRANSFER YOUR ANSWERS TO THE ANSWER SHEET. YOU MAY TAKE NOTES IF YOU LIKE.

30. a.
    b.
    c.

31. a.
    b.
    c.

32. a.
    b.
    c.

33. a.
    b.
    c.

34. a.
    b.
    c.

35. a.
    b.
    c.

36. a.
    b.
    c.

AS SOON AS YOU HAVE TRANSFERRED YOUR ANSWERS TO THE ANSWER SHEET, GO ON TO PART II.

SCRIPT - LISTENING COMPREHENSION

30. Frame 1

    a. Pierre dit bonjour à Mireille.

    b. Mireille va prendre les billets.

    c. Mireille va attendre Pierre.

31. Frames 4, 5

    a. Pierre donne l'argent à l'employé.

    b. L'employé demande les billets.

    c. Pierre prend les billets.

32. Frames 6, 7

    a. Ils veulent aller en bas.

    b. Ils veulent aller en haut.

    c. Ils veulent aller au milieu.

33. Frame 8

    a. Il cherche l'ouvreuse.

    b. Il voit l'ouvreuse.

    c. Il trouve l'ouvreuse.

34. Frames 10, 11

    a. Pierre décide de prendre les deux places.

    b. Les deux places sont trop loin de l'écran.

    c. Les deux places sont trop près de l'écran.

35. Frames 14, 15

    a. Ils préfèrent une place ici et une place là.

    b. Pierre et Mireille veulent être ensemble.

    c. Les deux places sont trop près de l'écran.

36. Frames 16, 17, 18

a. Ils ne peuvent pas prendre les deux places au dernier rang.

b. Ils décident de prendre les deux places au dernier rang.

c. L'ouvreuse demande si Pierre a ses lunettes.

PART II - COMPLETION

THE FOLLOWING PARAGRAPH DESCRIBES PIERRE AND MIREILLE ON A TRIP TO THE MOVIES. COMPLETE THE SENTENCES WITH WORDS THAT BEST FIT THE MEANING ACCORDING TO THIS CONTEXT. ONCE YOU COMPLETE PART II, YOU MAY NOT RETURN TO THIS SECTION. WRITE YOUR ANSWERS ON THIS SHEET.

Pierre et Mireille vont au cinéma. Pierre va acheter les _____ à la caisse. L' _____ les aide à trouver des places. Pierre et Mireille refusent deux places au milieu parce qu'elles ne sont pas _____. Ils ne _____ pas être au premier rang parce que c'est trop près de l' _____. Enfin, ils décident de _____ deux places au dernier rang parce que Pierre a ses _____.

YOUR INSTRUCTOR WILL TELL YOU WHEN TO GO ON TO PART III.

PART III - VERBS/STRUCTURE

DECIDE WHICH OF THE FOUR CHOICES IS NEEDED TO CORRECTLY COMPLETE THE FOLLOWING SENTENCES. MARK YOUR ANSWER SHEET ACCORDINGLY.

37. Pierre et Mireille _____ deux places au dernier rang.

a. veut

b. prendre

c. vouloir

d. prennent

38. Au cinéma, _____-vous aller en haut où en bas?

a. veux

b. vouloir

c. voulons

d. voulez

39. Pierre cherche l'ouvreuse. Il ne _____ trouve pas.

a. elle

b. lui

c. la

d. le

40. Nous _____ les deux places au dernier rang.

a. vouloir

b. prennent

c. prenons

d. voulez

41. Pierre a ses lunettes. Il _____a.

a. les

b. le

c. ses

d. la

42. Est-ce que tu _____ souvent le train?

a. prend

b. prends

c. prendre

d. prenez

43. Je ne _____pas aller au cinéma.

a. veut

b. vouloir

c. prends

d. veux

GO ON TO PART IV.

PART IV - VOCABULARY DISCRIMINATION

FOR EACH SENTENCE, DECIDE WHICH CHOICE, 'a' or 'b', MOST LOGICALLY COMPLETES THE MEANING. MARK YOUR ANSWER SHEET ACCORDINGLY. YOU MAY WRITE ON THIS SHEET.

44. Pierre va prendre les billets (a. à l'employé / b. à la caisse.)

45. Pierre a ses lunettes. Il décide de prendre deux places au (a. dernier / b. premier) rang.

46. Pierre et Mireille cherchent deux places (a. libres / b. occupées).

47. Au cinéma, (a. l'ouvreuse / b. l'ouvrier) vous aide à trouver des places.

48. Quand je n'ai pas mes lunettes, je préfère être (a. loin / b. près) de l'écran.

49. Nous ne voulons pas être trop près ou trop loin de l'écran, donc nous voulons être (a. au milieu / b. au dernier rang) de la salle.

50. Pour voir le film, il faut regarder (a. le plancher / b. l'écran).

STOP.

Appendix A-2: User-Satisfaction Survey

PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, Air Force Privacy Act Program, the following information about this survey is provided;

AUTHORITY: Title 10, United States Code, 8012 and AFR 30-23, 22 Sept 76, Air Force Personnel Survey Program.

PRINCIPAL PURPOSE: To evaluate the attitudes towards the use of technology (computer-controlled videodisc) for the teaching of foreign languages.

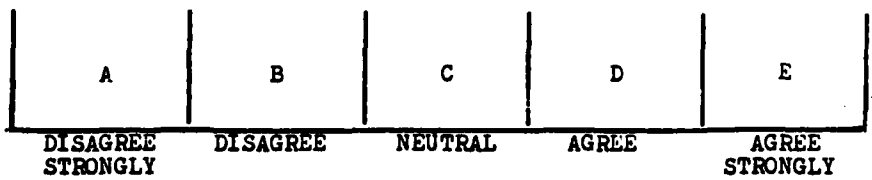
ROUTINE USES: The data provided by this questionnaire will be used to develop a clearer understanding of the role technology might play in the language learning process.

DISCLOSURE IS VOLUNTARY: Completion of the questionnaire is voluntary; however, in the absence of full participation by a representative cross-section of cadets, the results of this effort could be biased. Therefore, your full participation is requested and appreciated. No adverse action will be taken against those cadets who refuse to complete the questionnaire.

ATTITUDE SURVEY

TO THE STUDENT: Please respond as honestly and thoughtfully as possible to the statements listed below. Your answers are critical to the success of this research project. Thank you for your continued cooperation.

INSTRUCTIONS: Use the scale below to respond to each statement. Please mark your answers carefully on your digitek. Pay close attention to the number of each question.



60. I enjoyed the one-on-one nature of the videodisc learning system.

61. I found that the time passed quickly while using the videodisc system.

62. I prefer studying a foreign language in a classroom setting.

63. I enjoy using computers to learn new material.

64. I prefer learning a foreign language from an instructor.

65. I would recommend videodisc learning to other beginning language students.

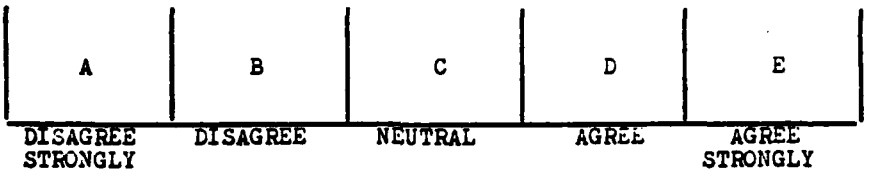
66. I felt the material presented was the right level for my abilities.

67. I used the student-control options frequently.

68. I prefer studying language with other students around.

69. I understood what the important parts of the lesson were.

70. I enjoyed being able to choose which section of the lesson I wanted to work on.



71. I found the student-control option "redo" useful.

72. I didn't like having to respond to every question.

73. I didn't use the Help option.(AU SECOURS)

74. I prefer being required to complete exercises in a predetermined order.

75. I liked getting feedback every time I made a response.

76. I would have liked more explanation about how to use the videodisc system.

77. I prefer having a textbook when I study language.

78. I liked being able to skip questions or exercises.

79. I liked being able to decide how much time I wanted to spend on an exercise.

80. I liked the frequent repetition.

81. I missed being able to "speak" the language.

82. I thought the illustrations (video frames) helped me understand what was being said.

83. I did not like the use of "menus".

PLEASE RESPOND TO THE FOLLOWING QUESTIONS.

1. Would you describe yourself as knowledgeable about computers?

2. How much experience have you had with computer-assisted instruction?

3. Do you own a micro-computer?

4. List five things you enjoyed about the videodisc learning system you have been working with during this lesson.

5. List five things that you didn't like about the videodisc learning system you have been working during this lesson.

Appendix B. Instructional Materials

1. Dialogue Content/Video Illustrations

2. Instructions to Students
   (Videodisc Group)

3. Instructions to Students
   (Classroom Group)

Appendix B-1: Dialogue Content/Video Illustrations

leçon 6

1. Pierre et Mireille vont au cinéma

Personnages: Pierre, Mireille, Un employé du cinéma, L'ouvreuse

Pierre. - Je vais prendre les billets. Attendez-moi là, Mireille. (1) (Pierre rejoint Mireille, après avoir acheté les billets à la caisse).

Mireille. - Vous avez les billets? (2)

Pierre. - Oui, je les ai. (3)

Employé. - Vous avez vos billets? (4)

Pierre. - Les voilà. (5)

Employé. - Vous voulez aller en haut ou en bas? (6)

Mireille. - Nous voulons aller en bas. (7)

Pierre. - Où est l'ouvreuse? Je ne la vois pas. (8)

Mireille. - La voilà. (9)

Ouvreuse. - Vous voulez être près de l'écran? Vous voulez ces deux places au troisième rang? (10)

Pierre. - Ah! non, je ne veux pas. C'est trop près de l'écran. (11)

Ouvreuse. - Alors, il y a deux places libres au dernier rang. (12)

Pierre. - Non, c'est trop loin de l'écran. (13)

Ouvreuse. - Alors, au milieu de la salle. Il y a une place ici et une place là. (14)

Pierre. - Mais non! Nous voulons être ensemble. (15)

Mireille. - Vous avez vos lunettes, Pierre? (16)

Pierre. - Oui, j'ai mes lunettes. (17)

Mireille. - Il a ses lunettes, Madame. Nous prenons les deux places au dernier rang. (18)

Pierre. - Oh! le film commence. (19)

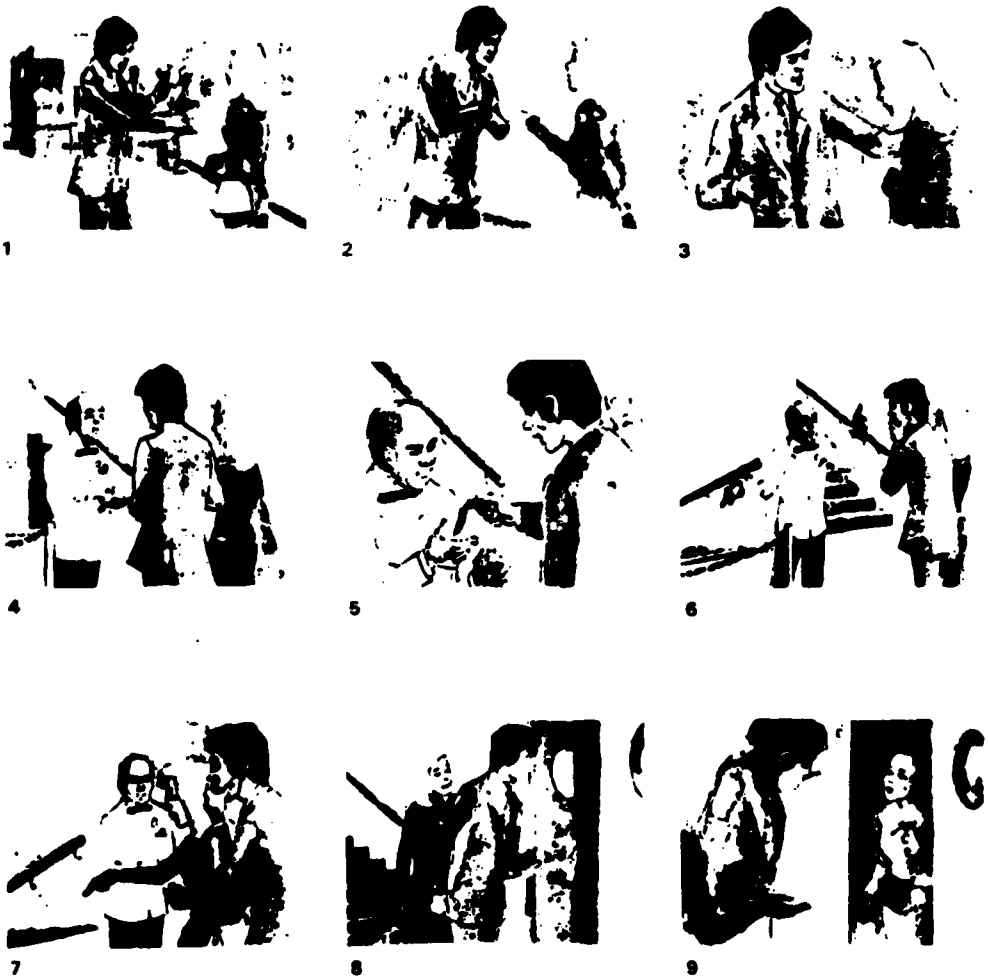
Voix de femme. - Chut! Chut! Silence! (20)

Note: Underlining indicates new material. All forms of the verbs "prendre" and "vouloir" were taught. "Voir" was introduced only in first person and infinitive forms. The direct object pronoun "le" was presented along with "la" and "les."

leçon 6

1. Pierre et Mireille vont au cinéma

Personnages : Pierre
Mireille
Un employé du cinéma
L'ouvreuse



1 2 3

4 5 6

7 8 9

10

11

12

13

14

15

16

17

18

19

20

Appendix B-2: Instructions to students (Videodisc Group)

STUDENT INFORMATION PACKET

TO THE STUDENT: Participation in this research project is voluntary; however, in the absence of full participation by a representative number of cadets, the results of the experiment could be biased. If you do not wish to participate, please raise your hand. Thanks in advance to those who offer their assistance! For the next two recitations (37,38), you will be working with a videodisc learning system. The lesson which will be presented deals with a conversation between two French friends, Pierre and Mireille. You will use the videodisc system to complete a series of exercises and activities designed to help you understand the content of the conversation and learn new vocabulary items, verbs, and structures. You will be tested over this material during Recitation 39. All preparation for this test will be done in class. THE RESULTS OF THIS EXAMINATION WILL NOT DIRECTLY AFFECT YOUR GRADE FOR THIS COURSE; however, the time and effort you expend to master this material should improve your overall abilities in French.

VIDEODISC LEARNING SYSTEM: The system includes a micro-computer and a videodisc player. All sections of the lesson are listed in a master table of contents called MENU PRINCIPAL. Individual sections of the lesson begin with similar menus which describe the activities of the section and give you an opportunity to return to the MENU PRINCIPAL (see page 3). A series of STUDENT CONTROL OPTIONS built into the system offer great flexibility.

You may skip or repeat questions or entire exercises as you choose. You may consult a reference section (AU SECOURS) which offers a French-English glossary and verb charts. Refer to page 4 for a description of these STUDENT CONTROL OPTIONS.

INSTRUCTIONS: Please read all instruction screens carefully. You will have forty minutes during Recitation 37, and forty five minutes during Recitation 38 to work through the sections of the lesson. You are expected to complete all sections. You may choose the order in which you wish to do the sections, and you may spend as little or as much time on each as you feel necessary. You may also repeat the sections as often as you like. If you encounter any problems while you are working, raise your hand for assistance. You may take notes if you like, but you will be required to leave them in the classroom when you leave. REMEMBER, DO NOT DISCUSS THE MATERIAL PRESENTED OR STUDY FOR THE LESSON OUTSIDE OF THE CLASSROOM. Enjoy a break from homework!

NOTE--Some cultural information is presented while the computer is loading programs. This material is for your interest only. You will not be tested over this information.

CONTENT OF MENU PRINCIPAL:

A. PRESENTATION 1 -- Presents the first half of the conversation between Pierre and Mireille.

B. EXERCICE 1A -- Requires you to reconstruct dialogue lines from list of scrambled words.

C. EXERCICE 1B -- Requires you to match dialogue lines to written text.

D. PRESENTATION 2 -- Presents the second half of the conversation between Pierre and Mireille.

E. EXERCICE 2A -- Same as Exercice 1A

F. EXERCICE 2B -- Same as Exercice 1B

G. REVISION 1 -- Multiple choice questions based on the entire conversation.

H. PRESENTATION 3 -- Presents the verbs prendre, vouloir, and voir with practice exercises.

I. PRESENTATION 4 -- Presents the direct object pronouns le, la, les with practice exercises.

J. REVISION 2 -- Practice vocabulary and verb exercises.

EXAMPLE OF SECTION MENU:

REVISION 2 -- MENU

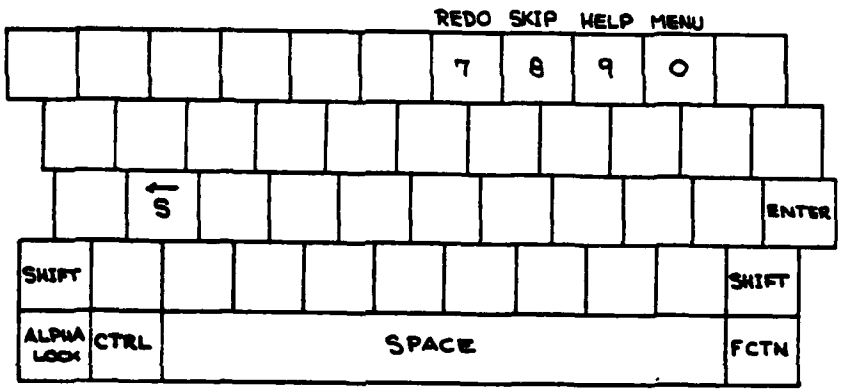
A. Vocabulaire

B. Verbes

C. Menu Principal

STUDENT CONTROL OPTIONS

READ THE DESCRIPTIONS GIVEN BELOW TO LEARN HOW TO USE THESE OPTIONS. YOU MAY REFER TO THIS HANDOUT OR ASK FOR HELP AT ANY TIME DURING THE LESSON.



7 + ENTER = REDO		Allows you to repeat text and video screens.
8 + ENTER = SKIP		Allows you to skip text and video screens.
9 + ENTER = HELP		Takes you to a reference section which includes a French/English glossary and verb charts.
0 + ENTER = MENU		Takes you to the Menu of the section on which you are currently working.
FCTN + S = ERASE		Allows you to erase typing errors. Hold the FCTN key down and press the back arrow (S) key.

Appendix B-3: Instructions to Students (Classroom Group)

STUDENT INFORMATION PACKET

TO THE STUDENT: Participation in this research project is voluntary; however, in the absence of full participation by a representative number of cadets, the results of the experiment could be biased. If you do not wish to participate, please raise your hand. Thanks in advance to those who offer their assistance! During the next two recitations (37,38), you will be working with a French lesson which involves a conversation between two French friends, Pierre and Mireille. You will be expected to understand what is being said and to learn new vocabulary words, verbs, and structures. We will spend these two recitations learning and practicing the lesson material. You will be tested over the material during Recitation 39. All preparation for this test will be done in class. THE RESULTS OF THIS EXAMINATION WILL NOT DIRECTLY AFFECT YOUR GRADE FOR THIS COURSE; however, the time and effort you expend to master this material should improve your overall abilities in French.

INSTRUCTIONS: You will spend forty minutes during Recitation 37 and forty five minutes during Recitation 38 working through the lesson. You may use the glossary and verb charts (see page 2) and take notes during the presentation if you like; however, you will not be permitted to take any of these materials out of the classroom. REMEMBER, DO NOT DISCUSS THE MATERIAL PRESENTED OR STUDY FOR THE LESSON OUTSIDE OF THE CLASSROOM. Enjoy a break from homework!

METHOD OF INSTRUCTION: Your instructor will be using a teaching method developed by the French government. He will take time now to explain how the method works so that you can participate fully.

REFERENCE SECTION

VOCABULAIRE

au milieu	-- in the middle
attendre	-- to wait for
avoir	-- to have
billet (m)	-- ticket
caisse (f)	-- cashier
cinéma (f)	-- movie
dernier	-- last
lunettes (f,pl)	-- glasses
être	-- to be
écran (m)	-- screen
en bas	-- downstairs
en haut	-- upstairs
libre	-- unoccupied
loin	-- far
lunettes	-- eye glasses
ouvreuse	-- usherette
premier	-- first
prendre	-- to take (get)
près	-- near
trop	-- too
voilà	-- there is, are
voir	-- to see
vouloir	-- to wish (want)

VERBES

Prendre

je prends	nous prenons
tu prends	vous prenez
il/elle prend	ils/elles prennent

Vouloir

je veux	nous voulons
tu veux	vous voulez
il/elle veut	ils/elles veulent

AD-A145 599 INSTRUCTION VIA AN INTELLIGENT VIDEODISC SYSTEM VERSUS 2/2
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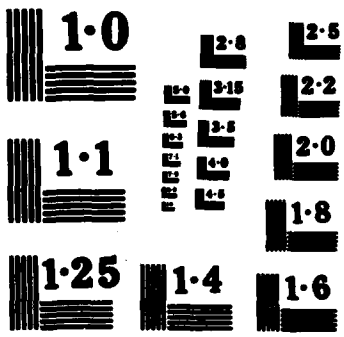
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